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NUCLEAR DATA UNCERTAINTIES IN 2004: A PERSPECTIVE

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Interest in nuclear data uncertainties is growing quite rapidly after having languished for several years. Renewed attention to this topic is being driven by the very practical need for assuring that nuclear systems will be safe, reliable, and cost effective, according to the unique requirements of each specific application technology. Furthermore, interest is also emerging in certain areas of basic nuclear science, such as astrophysics, where, until recently, attention has been focused mainly on uncovering basic concepts and principles rather than on acquiring detailed quantitative knowledge. The availability of fast computers and concurrent development of sophisticated software now enables the available nuclear data uncertainty information to be used more effectively than was the case in earlier years. Unfortunately, the current inventory of requisite uncertainty data is quite limited when measured against these growing demands. Thus, there is a real need to generate more comprehensive and reliable uncertainty data, and to make it readily available within a relatively short period of time in suitable form for use by the computer codes employed for the development and analysis of nuclear systems. This conference contribution discusses some of the key issues that need to be addressed in meeting this demand during the next several years. The many opportunities that will be afforded by the availability of more extensive and reliable uncertainty information, as well as some of the associated pitfalls that need to be avoided, will also be stressed in this contribution.